



European  
Automobile  
Manufacturers  
Association



# EC Plastics Strategy

## ACEA-CLEPA Position



September 2018

## EXECUTIVE SUMMARY

Plastic materials provide useful solutions to make vehicles lighter, to increase fuel efficiency, to reduce carbon emissions and to deliver enhanced safety applications such as seatbelts and airbags. The use of plastics supports not only improvements and innovation in vehicle design and performance but also an increased amount of recycled materials in many car parts that are already engineered using recycled plastics with a wide range of properties. However, the use of one or more plastics is driven by their specific functionality in a spare part or component. Furthermore, the amount of recycled plastic varies for different models depending on many criteria such as component requirements, material performance, material quality, availability, change of suppliers and may vary according to market conditions over the production time.

Using recycled plastic in some products is not always the best option when it comes to cost or energy efficiency. Recycled materials can only be used if there is guarantee that they have the exact same properties as the virgin material. Recycled plastics do not necessarily represent the best option to reduce environmental impacts over the vehicle's whole life cycle. In some cases, the use of recycled plastic over lighter virgin alternatives can lead to increased weight which will be reflected over the vehicle's use phase in higher environmental impacts, resulting in higher emissions. The use of recycled material sometime increases the weight of a part because the part needs to be reinforced to reach the same properties. In these cases, the ecological effect of recycled material can easily be negative through increase in CO<sub>2</sub> emissions during use-phase.

Therefore, the European Automobile Manufacturers' Association (ACEA) and the European Association of Automotive Suppliers (CLEPA) believe that using any standard approach to mandate the use of recycled plastics (either through pledges or mandatory targets) is contradicting any environmental strategy implemented by the European Commission. At a moment where the EU Commission is asking industry to pledge or commit to more use of recycled plastics materials, it is also asking to ban certain recyclable products. Waste policy should not be discussed in isolation to other policy areas such as climate and energy policies. Any further initiative should complement and not undermine existing legislation. Furthermore, the risk of failing to meet sector-specific recycling targets should be carefully considered. There is a considerable legal overlapping among different legislation which should be avoided. Even though vehicle manufacturers and suppliers keep developing the use of recycled plastics despite increasing technical constraints, quality requirements, growing safety regulations and other legal requirements, it is necessary to consider all ecological, economic and social aspects and to consider that vehicles are very long-lasting products with an extremely complex supply chain.

For the above-mentioned reasons, the European automotive industry believes that it will be rather impossible to substantially increase the amount of recycled plastics in the future. Considering also

that the automotive sector stands for only 8.9%<sup>1</sup> of the total demand of plastic, ACEA and CLEPA want to strike an appropriate balance between ensuring efficient protection of the environment and promotion of European industry competitiveness.

ACEA and CLEPA would like to submit comments in connection with the EU-wide pledging campaign targeting industry and public authorities, promoted by the Commission in the context of the plastics strategy. Please note that car manufacturers are already using recycled materials despite numerous technical limitations and have in mind that vehicles are very long-lasting products with an extremely complex supply chain.

### **1. The contribution of the automotive industry to the Circular Economy/use of recycled plastic in automotive industry**

- Car manufacturers acknowledge their responsibility to deliver sustainable products from cradle to grave. Today, only a limited amount of waste is sent to landfill by the automotive sector, even though some 8 million vehicles reach the end of their lives each year.
- All vehicle manufacturers contribute to the circular economy by using recycled material to reduce environmental impact and for economic purposes. As consequence, recycled materials have been released for many applications, if the material fulfils the necessary requirements.
- For about 30 years, vehicle manufacturers have been working together with component and material suppliers to increase the amount of recycled materials in automobiles. Therefore, secondary materials are basically used in all cars placed on the market across the automotive sector.
- Since several years, significant amounts of recycled metals, glass, cotton, cardboard, elastomers and other materials are used in new vehicles to fulfil different functions. The amount of secondary plastics in vehicles is also constantly reassessed.
- Plastic materials are at the heart of solutions to make vehicles lighter, to increase fuel efficiency to reduce carbon emissions and to deliver enhanced safety applications such as seatbelts and airbags.
- The use of plastics supports improvements and innovation in vehicle design and performance. In addition, many car parts are already engineered using recycled plastics. However, the use of certain plastic is driven by their specific functionality in a part.
- Plastic recyclates have a wide range of properties. Most of today's recycled material applications in vehicles are in the non-visible areas:
  - Wheelhouse arches liners (fender liners)

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<sup>1</sup> <http://ec.europa.eu/environment/circular-economy/pdf/plastics-strategy-brochure.pdf>

- Heating and air conditioner housings (HVAC systems)
  - Carpets
  - Starter battery trays
  - Air cleaner assemblies and underbody panels
  - Reinforcement/support for bumpers
  - Powertrain applications insulation materials
  - Engine covers
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- Each vehicle part represents a different challenge which requires automotive manufacturers and their supplier to carry out in-depth research and engineering to investigate the technical feasibility of the substitution while keeping a reasonable approach to ensure that both financial and environmental improvements are achieved.
  - For those materials and components in which recycled materials can be easier used as substitutes, alternatives have already been explored and implemented for many years (e.g. large parts containing a high share of a single plastic grade – usually with technical thermoplastics like PP, PE or ABS).
  - Vehicle manufacturers keep developing the use of recycled plastics year on year despite increasing technical constraints: (e.g. weight, temperature variability), quality requirements (e.g. A-surface parts with coated surfaces), growing safety regulations (e.g. additional crash tests requirements, pedestrian safety, passenger protection resulting in a rising number of airbags) and other legal requirements (e.g. vehicle interior air quality regulation).
  - Vehicle manufacturers will continue to use recycled plastic grades meeting the stringent requirements of the automotive industry. As the recycled plastic grades are in competition with virgin materials, potential substitution depends on the availability and the quality of the recycled materials offered on the market.

## 2. Limits to the use of recycled plastic in automotive applications

Secondary raw materials are used as much as technically feasible and sustainable. Using recycled plastic in some products is not always the best option when it comes to increased cost - or energy efficiency. Recycled materials can only be used if there is guarantee that they have the exact same properties as the virgin material.

As the automotive industry is working hard to increase the amount of recycled materials in the vehicle already since more than 30 years, it will be very challenging to substantially increase the amount in future.

### **2.1. Recycled plastics and environmental impact:**

- The amount of recycled plastic varies for different models depending on many criteria such as component requirements, material performance, material quality, availability, change of suppliers and may vary according to market conditions over the production time.
- It is necessary to consider all ecological, economic and social aspects. Recycled plastics do not necessarily represent the best option to reduce environmental impact over the vehicle whole life cycle. In some cases, the use of recycled plastic over lighter virgin alternatives can lead to increased weight which will be reflected over the vehicle's use phase in higher environmental impacts, resulting in higher emissions. The use of recycled material sometime increases the weight of a part, because the part needs to be reinforced to reach the same properties. In these cases, the ecological effect of recycled material can easily be negative through increase in CO<sub>2</sub> emissions during use-phase. Therefore, using any standard approach to mandate the use recycled plastics (either through pledges or mandatory targets) is contradicting any environmental strategy implemented by the European Commission.
- Dismantling, sorting, washing, re-compounding and transport of the secondary material also needs to be taken into consideration to decide, if its use is environmentally favourable.

### **2.2. Availability of recycled material plays an important role**

- An increase of the use of secondary materials is limited also due to the limited availability of materials on the market. For example, the number of components suitable for the use of recycled materials is much larger than the material available on the market. The automotive industry cannot depend on spot markets.
- Therefore, it could happen that the amount of recycled content in one component varies from day to day due to the market availability. Even suppliers cannot guarantee that they will be able to use the same amount of recyclates for one week as they used to do the week before. This makes a calculation of the actual amount of secondary plastics in vehicles over the production phase very difficult. Currently there is no consistent methodology and process used in this industry to calculate and compare such numbers. The automotive industry is willing to investigate in these restraints and to start a process for finding solutions that help to overcome the limitations described.

### 2.3. Technical limitations

- A detailed assessment of all technical, logistic and economic aspects is necessary for the choice of components made of plastic recyclates. Therefore, it is not possible to make a reliable prediction with respect to the use of recycled materials in the future.
- The use of secondary plastics in safety relevant parts (crash test relevant) is usually not possible due to the higher variance of technical properties like tensile modules, Charpy notched etc. As another example, recycled plastic cannot be used for safety relevant parts, such as airbag covers which might splinter in case of an accident and injure passengers.
- The use of recycled plastics is restricted by several legal, technical and quality requirements and has to be reassessed by each part:
  - Cosmetic cover for engine: new engine generation with lower fuel consumption generates much higher heat. No recycled material is available to fulfil the technical requirements.
  - Plastic parts in door: new side crash requirements and additional airbags limit the number of parts suitable for recycled material.
  - Water deflector: use of density reduced material saving 6% weight. No recycled material of this quality is available on the market.
  - Shift to lightweight technology like MuCell: need to first stabilize production processes with virgin material. The development of recycled material takes time and the process needs high quality polymers. Only limited recycled materials are available<sup>2</sup>.
  - Vehicle interior air quality requirements as well as odour requirements are constraints for the use of recycled material in interior parts. Only limited recycled materials are available.
  - Plastics in visible parts in the vehicle interior without surface finish treatment: due to the higher inconsistency of the quality of recycled material sources it is difficult to meet requirements for an exact colour shade.
  - Painted parts: it is difficult to paint components made from secondary plastics, as also this process requires specific quality and purity of the surface to be painted. Contamination with e.g. silicon, which is a frequent issue with recycled sources, does impede adhesion of the paint as required.

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<sup>2</sup> MuCell® is a micro-cellular foam process permitting plastic part design with reduced material wall thickness. The combination of density reduction and design for functionality often results in material and weight savings of more than 20%.

For these reasons' components made of recycled materials can only be used in areas of a vehicle where the colour is not important.

- The adjustment of the recycled material to each part is needed resulting in the fact that the recycled content in an automotive part may vary from 5 – 100 %.

#### **2.4. No common methodology**

There is currently no standardised methodology which allows the accurate accounting of recycled plastic rates across different components, parts and assemblies within automotive products. It is therefore impossible for vehicle manufacturers and suppliers to pledge for the uptake of specific amounts of recycled plastic within new vehicles as important discrepancies could appear due to inaccurate accounting method.

#### **2.5. Reliable data gathering through the supply chain**

- Uptake of recycled contents in automotive applications/parts will require alignments between industries.
- Large suppliers have the capability to vary the material composition of specific parts depending on availability, quality and consistency. These suppliers do not necessarily need to reflect negligible changes (e.g. when a part contains 30% or 40% recycled material) to vehicle manufacturers. In other words, any baseline figures such as suggested by the European Commission would result in inaccuracies.
- The quality of recycled plastics must fulfil the same requirements as virgin materials. If any issue arises during the product's use phase, the vehicle manufacturers could become liable for the quality and the properties of recycled plastics.
- Monitoring/controlling and tracking is extremely time, workforce and cost-intensive for both suppliers and OEMs and could make recycled materials not competitive.
- For these reasons suppliers/recyclers cannot guarantee the actual content of recycled content during the whole product-life-cycle of a part. Therefore, ACEA and CLEPA are not able to pledge for the uptake of specific amounts of recycled plastic in future products.
- Most manufacturers and suppliers do not have the ability to generate such data for reporting purposes. Any attempt in this regard would rather focus on projects which can only deliver actual environmental improvements across a specific vehicle range (e.g. LANDS, Recyclite).

## **2.6. Each vehicle is made with thousands of plastic components**

- Automotive supply chain is extremely complex incorporating many different parts with a lot of different plastics. These may change from type to type and with each generation of a vehicle type. It is therefore not possible to provide such details in 2018 for 2025 or even 2030.
- Furthermore, since vehicles are (very) long lasting products with sophisticated technologies and highly regulated by legal provisions, the requirements for parts are changing with every new vehicle generation – resulting in technical and material changes as already mentioned above.

## **2.7. Lack of consistent volume and quality of raw materials**

For the producers of recyclates it is challenging to meet automotive requirements and to provide materials on a consistent basis and in a sufficient quantity over the production period. In addition, these plastics are often derived from products that reached the end of their useful life and were put on the market decades ago using old plastic grades which are not necessarily used by the automotive industry anymore.

## **2.8. POPs and other contaminants**

With increasing concerns our industry monitors further substance restrictions discussed in the framework of other regulations (i.e. REACH, Stockholm Convention). These potential, across-the-board restrictions, e.g. in the area of lead and flame retardants, may dramatically hamper the use of secondary, recycled material for new products in future. Most parts from end-of-life products are likely to include legacy substances which are or will be banned at some point. Due to these restrictions, the amount of recycled material from post-consumer waste which can be supplied safely will be reduced and could therefore lead to higher prices which cannot compete with virgin materials or to interruption of supply.

## **2.9. Further light weighting activities due to CO<sub>2</sub> targets**

Life-Cycle Analysis clearly indicate that the use-phase of a car causes about 80 % of the environmental impact. To support meeting the very challenging CO<sub>2</sub> targets, the development and introduction of new light-weighting materials has a high importance/priority in the automotive industry. It is obvious that for those new materials only very limited sources of secondary material streams are already available.

## ACEA AND CLEPA PROPOSAL

### 3. Agree on an accounting methodology

A commonly agreed accounting methodology to define the amount of recycled plastic across the industry can be useful for monitoring in the future. However, this approach does not necessarily provide sufficient scientific evidence that the use of recycled plastic for a specific part is the least environmental impactful option.

### 4. Support industry research and innovation

- As mentioned above, several manufacturers have started projects aiming to create opportunities to reduce environmental impacts generated by plastics. The use of recycled plastics is part of the solution but should not be considered as a one-size-fits-all solution as other options also exist (such as the use of renewable materials) to meet these objectives.
- Such projects and studies require the involvement of the entire value chain (recyclers, compounders, part manufacturers, etc.) and cannot be supported only by the automotive industry. The automotive industry is therefore highly supportive to any financial public support to research and development activities encouraging the use of recycled and renewable plastics in new products.
- The inherent value of the products as well as their components and materials, along with sophisticated recycling processes, are ensuring a resource-efficient recycling process. Continued investments and the development of advanced treatment (sorting, cleaning) and recycling technologies and methods will be essential to further improve the uptake of secondary raw materials.
- Considering the efforts and investments of the industry – and in particular the recycling industry – to build up efficient and effective industrialised capacities and material segregation processes, over-ambitious objectives could be to the detriment of the sector and the overarching goals of a more circular economy.
- Further studies should focus on the challenges identified above (more specifically sorting and cleaning technologies) to bring on the market more consistent recycled plastic grades in greater quantities.

#### 4.1. Packaging material

The automotive industry depends on a long and complex supply chain that delivers raw materials, components and parts to the final production process. Regarding the variety and related quality demands adequate packaging material is and will be required. Similar conditions apply within the aftersales sector for original spare parts and internal logistics. For internal and external processes logistic containers and packaging are usually designed

for multiple reuse to avoid disposable packaging materials. Containers for components are circulated between suppliers and OEMs and are cleaned and maintained during the whole production time of a part.

Furthermore, OEMs are already effectively sorting and collecting sheets and end caps to allow high quality recycling procedures. The use of recyclates is possible and in many instances encouraged.

Many automobile manufacturers have already started campaigns to standardize and unify packaging materials and to avoid the use of composite materials wherever possible. The objective is to allow even higher recycling rates and qualities. Where possible returnable packages beyond the containers will be considered. Eventually criteria for packaging materials that can be introduced into the purchasing requirements are considered. Also, the share of recyclate applications will be considered. First projects and initiatives are already implemented with promising results. To ensure a sustainable implementation and a close cooperation with suppliers and packaging manufacturers are crucial prerequisites.

#### **4.2. Fulfil socio-economic needs and growth as a significant part of EU supply will continue to be sourced from virgin sources**

In conclusion the automotive industry believes that recycling itself should not be an environmental target per se but rather a method to improve the efficient recovery of certain raw materials. Life Cycle Assessment studies have already proved that an increase of recycling targets would not always have an environmental benefit. In contrast, it is necessary to carefully assess trade-offs between the enforcement of recycling targets and environmental aspects over the whole product's life cycle. As result ACEA and CLEPA have strong doubts about the feasibility and effectiveness of potential minimum recycled material targets for a material product or part.

#### **4.3. Tailor made rather than one-size-fit-all solutions**

It is the overall goal to most efficiently achieve the objectives of the circular economy across the whole European industry. Products and sectors however are completely different not only in their size and complexity but also in their processes and products. Whereas the increase of secondary materials and thus a pledging campaign is making sense in some sectors it is not target leading in others. It follows that there is unfortunately no golden "one-size-fits-all" solution to achieve these objectives. Instead an alternative approach needs to be taken into account i.e. the consideration of the longevity/durability of articles versus their complexity which finally may result in different solutions for different product sector groups and thus in a much more realistic achievement of these objectives.



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Bearing in mind the above-mentioned considerations, ACEA and CLEPA would also like to mention that, due to the different companies' business strategies and the variety across the automotive supplier value chain, individual automobile manufacturers and automotive suppliers may develop further initiatives and/or propose their own pledges on the uptake of recycled content in products, mainly driven by national governmental initiatives. Due to the lack of common methodology, those pledges are not comparable.

The co-signatories are looking forward to an open and constructive discussion with the European Commission in connection with the future initiatives of the legislator and the concerns of European automotive industry.

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Sigrid de Vries

**CLEPA Secretary General**

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Erik Jonnaert

**ACEA Secretary General**



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## ABOUT ACEA

- ACEA represents the 15 Europe-based car, van, truck and bus manufacturers: BMW Group, DAF Trucks, Daimler, Fiat Chrysler Automobiles, Ford of Europe, Honda Motor Europe, Hyundai Motor Europe, Iveco, Jaguar Land Rover, PSA Group, Renault Group, Toyota Motor Europe, Volkswagen Group, Volvo Cars, and Volvo Group.
- More information can be found on [www.acea.be](http://www.acea.be) or [@ACEA\\_eu](https://twitter.com/ACEA_eu).

## ABOUT THE EU AUTOMOBILE INDUSTRY

- 13.3 million people – or 6.1% of the EU employed population – work in the sector.
- The 3.4 million jobs in automotive manufacturing represent over 11% of total EU manufacturing employment.
- Motor vehicles account for some €413 billion in tax contributions in the EU15.
- The sector is also a key driver of knowledge and innovation, representing Europe's largest private contributor to R&D, with €54 billion invested annually.
- The automobile industry generates a trade surplus of €90.3 billion for the EU.



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**CLEPA**, the European Association of Automotive Suppliers, represents over 3.000 companies supplying state-of-the-art components and innovative technology for safe, smart and sustainable mobility, investing over 20 billion euros yearly in research and development. Automotive suppliers in Europe employ nearly five million people across the continent.

- Some **12 million** people are employed in the European automotive industry
- European automotive suppliers directly employ 5 million people
- European automotive suppliers invest over **€20bn** in RDI per year. They are the biggest private investor into research and innovation
- Per year, **18 million** vehicles are manufactured in Europe, contributing to the stability and growth of the European economy

CLEPA

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